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ABSTRACT

Continuing education for physicians and other health professionals is considered a necessity. One of the methods that physicians could select for their continuing education is the use of self-learning materials (SLM) such as audiotapes, videotapes, slides, television, videodiscs, and computers in the home. A survey taken by the World Health Organization (WHO) in Europe (through interviews with experts, by invited papers, as well as through a mailed questionnaire to England) showed that doctors approve of the concept of SLM although they seem to prefer small-group learning experiences and reading books and journals. The study concluded that SLM could be made more attractive for continuing education if their methods were updated so that they used the latest technology and up-to-date teaching methods, if they were readily available, and if physicians understood that their use could augment rather than supplant small-group learning techniques. WHO recommends that greater thought be given to preparation of SLM and to their promotion in convincing health professionals of their desirability. (KC)

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AVAILABILITY AND UTILIZATION OF SELF-LEARNING MATERIALS
IN CONTINUING EDUCATION

Report on a study

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1. Definition of continuing education

A WHO Expert Committee (1) defined continuing education as "... the training that an individual physician undertakes after the end of basic education or of any additional education for a career, to improve competence and not with a view to gaining a new qualifying diploma or licence". The definition was made in 1973 and has met with general acceptance. There is every reason to suppose that other health professionals would also accept the definition if the word "physician" were deleted and the appropriate professional substituted; thus it is the definition used in this study which although it is concerned primarily with physicians does, also, consider nurses.

2. The need for continuing education

There can be no denying the need for continuing education. Fülöp (2) has defined its ultimate purpose as "ensuring that the quality of preventive and curative care given by health personnel is at the highest possible level". Close attention began to be paid to continuing education in the 1960s, but it is in the last ten years that it has really attracted the attention of governments, the professions and educators. As knowledge expands almost exponentially it becomes more obvious that the knowledge, skills and attitudes acquired by health professionals during their basic training cannot be sufficient for the rest of their careers. A physician graduating in 1982 is likely to be in practice for a 30-40-year period, during which time medicine will change beyond recognition. Thus the health professional is going to have to adapt constantly to changing situations.

3. Self-learning material

There exists a substantial amount of literature on the use of unsupervised learning at many different levels of education and especially at the level of undergraduate medical education. The bulk of such literature tends to be of a descriptive nature, but there is a small amount that is far more scientific and objective in its approach and that demonstrates quite clearly that self-learning material can be most effective. Thus when this report on self-learning materials was planned it was assumed that effectiveness, defined as a measure of the degree to which the stated objectives are attained, had been proved beyond all reasonable doubt. The assumption was also made that efficiency, defined as cost-effectiveness, and acceptability, defined as the degree to which learners and teachers find the experience agreeable, were not in question.

As the compilation of the report proceeded, however, it became clear that many doctors either rejected or were not familiar with the research that had established these facts. The most likely reason for this state of affairs is that the research had been done not in the area of medicine but in the world of education.

The belief that underlies unsupervised learning is that if a learner is well motivated, is given the learning tasks in manageable, structured units and is able to interact with the learning, then achievement will be effective, efficient and acceptable. Gagné and Briggs (3) list the following features as being characteristic of individual instruction.

- The teacher provides fewer of the instructional events.
- The materials provide more of the instructional events.
- Time is thus made free so that the teacher can do more personalized work with the students and help them to decide what to learn and how to learn it. The teacher also monitors student progress more closely and does more diagnosis of difficulty and more remedial teaching.
- There is more opportunity for variations among students in what to learn, how to learn, and which materials to use for learning.
- The allocation of time is allowed to vary among students and there is no need for them all to work at the same pace.

4. Background to the survey

Within the framework of the medium-term programme for health manpower development, the WHO Regional Office for Europe decided to undertake a study on the availability and utilization of self-learning materials (SLM) in continuing education. According to WHO, SLM are valuable because they can give students more responsibility for their own standard of performance; this view echoes the thoughts of educationalists in general.

5. Definition of self-learning and self-learning material

Defining self-learning can present semantic problems because it can be argued that teachers teach and learners learn so all learning must be self-learning. On the other hand, if SLM are defined very simply as any learning resource that can be used by a learner without the physical presence of a teacher, then it is clear what self-learning is intended to be. The essence of the matter is learning without a teacher. Such a definition does not preclude learning from fellow learners.

6. Purpose and role of SLM

Once health professionals have obtained an initial qualification and are engaged in their profession, then the bulk of their time is going to be spent in putting into practice what has been learnt. The amount of time available for education is limited, especially if they are working in an isolated rural community. The opportunities for meeting fellow learners as in pre-qualification days are going to be very few. There are not enough teachers to provide one for each learner. As has been mentioned before, the growth of knowledge is going to take place at an ever-increasing rate. Thus it is quite clear that health professionals have to undertake to educate themselves if they are going to keep their knowledge up to date. SLM offer the only economic, effective and acceptable way of coping with the situation.

7. Types of SLM

There is really no limit to the different forms that SLM can take. Audio tape and 35 mm slide programmes have tended to be the predominant type, but there is clear evidence that video is making an ever-increasing impact. The development of video programmes in a country tends to parallel the development of television and technology in general (Switzerland is a good illustration of this point). The problem with video, and a major factor in holding back its development, has been the number of incompatible formats available in Europe. As the domestic video market expands, however, there are likely to be more and more health professionals who own equipment and thus are able to view continuing education programmes. A popular format for continuing education is 16 mm film, but it does not really lend itself to self-learning. It may well be that the video disc will turn out to be the most popular format over the next ten years. Finally, the spread of home computers and the transmission of text via television would all seem to have possibilities.

8. The development, availability and use of SLM

It is unfortunate that SLM give the appearance of being so easy to develop. There are many teachers who think that all they have to do is to record their lecture on audio or video tapes. It has been demonstrated very clearly that this is not the case. For example, a number of pharmaceutical companies have tried this approach and failed because they chose to ignore the advice of educationalists. Reading a book and listening to a tape are, for example, quite different educational experiences. When reading, the eye can take in a whole lot of text at one time and can refer back almost subconsciously to a previous statement, but when it is the ear that is being used then every word has to be self-explanatory and the sentences short and to the point. Even more importantly, the learner has to be challenged to exercise judgement, perhaps by being told to switch off the tape, work through an exercise and then switch back for a suggested answer. In addition, adult health professionals demand materials that are based on experiences from real life, whereas many teachers think that they can continue with the theory-dominated materials they tend to use with the unqualified. The development of SLM calls for a team approach that involves the teacher, the educationalist, the audio-visual expert and preferably a member of the target audience.

SLM are neither widely available nor widely used. They have not been developed along the lines described above and are thus held in low esteem by many learners. They are not widely available because they are costly both to produce and to reproduce for the small-scale numbers involved.

9. Self-learning and self-evaluation

There is a clearly detectable movement in Europe that is calling for self-evaluation. The United Kingdom, for example, while it has so far resisted the call to follow the United States' pattern of audit, has begun to use self-evaluation, especially in the general practice/family physician area. If this movement gathers momentum, then it is going to increase the demand for SLM if only to make good the deficits revealed. The demand for self-evaluation is clearly linked with the expansion of knowledge, and with the development of a better educated population that wants to be assured that the health care it receives represents value for money.

10. The future of SLM

From what has been said there can be no doubt that SLM could have a vital role in continuing education. The expansion of knowledge, the greater awareness among health professionals of their own shortcomings and the changing nature of societies and economies all lead to a demand for continuing education. To provide that education in the traditional way is uneconomic and thus impossible. SLM could be the answer, but their rigorous evaluation followed by changes in the way they are produced must be the way forward. Studies need to be undertaken to explore areas of collaboration between health professionals both within and between countries. Collaboration would increase the size of the market for any one example of SLM, thus promoting both efficiency and economy. Teachers need to be educated so that the SLM they produce are highly motivating and acceptable to the learners. Learners need to be educated in how to use SLM to the best advantage and everyone has to rethink their concepts and see SLM as normal educational tools.

11. The methodology of the survey

The writer personally visited France and the Netherlands and was able to seek the personal opinions of many leading educators, who coincidentally were attending a meeting of the Association for Medical Education in Europe. In the United Kingdom, a postal questionnaire was used. Experts were invited by WHO to submit reports on France, the German Democratic Republic, the Federal Republic of Germany, Hungary, Poland, Sweden, Switzerland and the USSR (the detailed reports can be obtained from the Regional Office).

12. The findings

In spite of the fact that the concepts of continuing education and self-instruction are both understood and accepted, the actual use of SLM in continuing education for the health professions is very limited. The present survey, except in the German Democratic Republic, Hungary and the USSR, found little evidence of their existence in medical education, but equally it found no rejection of the idea. Why there should be this apparent paradox is a matter for conjecture. In some ways, the survey is more a catalogue of reasons why SLM does not exist than one of specific programmes used in the various countries.

While this is a survey of European practice, it may be helpful to look first at the United States, where at least continuing medical education is well developed. As Richards (4) says, "Medical education affects and is affected by the social, economic and political forces that have shaped America's history ...". Concern with continuing medical education could be said to start with a report by McCormack in 1907, who was shocked by the magnitude of the problem - out of a majority of 122 000 licensed physicians most were not doing any continuing medical education. It is well known, however, that the Flexner report of 1910 really started things moving. An Association of American Medical Colleges (AAMC) study in 1932 "marked the first mention of the continuum concept in medical education and the initial suggestion of mandatory continuing medical education for physicians". The American Medical Association did a survey of continuing medical education in 1938, and it may be a surprise to know that even at this date some 20 American cities were using small group instruction. Almost 30 years later in 1977, the AMA's directory of self-assessment programmes for physicians listed 28 separate examinations, and there was evidence that some 113 000 physicians had used the programmes in the previous ten years. Even greater use of the programmes began with the move towards performance assessment for relicensing or competency-based relicensing. So much for the development of continuing medical education, but even in the United States documentation about SLM is harder to find. Continuing medical education tends to be hospital based; it is developed mainly by interested faculty members who are prepared to pursue their interests even though career and financial rewards for teaching are, as in undergraduate education, sadly non-existent. Continuing medical education tends to take place in groups, and this factor, at least in the eyes of teachers, mitigates against SLM.

The last sentence could hold the key as to why SLM are so scarce in Europe. It is as if doctors become so antagonistic towards the lecture technique (which in their opinion dominates their undergraduate lives and deals with content that is academic rather than relevant to their practice) that they clutch at group learning as a chance to voice their own opinion, and to ask questions, to discuss common problems with their contemporaries. Such objectives are both understandable and laudable, but reflect badly on their training to date. In other words, the AAMC study of 1932 was right and education makes sense only if viewed as a continuum; continuing education cannot be seen in isolation. Educationally there are no reasons why SLM should not be a part of continuing medical education; on the contrary, there are very good reasons why they should, in fact, be a vital component. For example, if a group leader recognizes that the group

cannot solve the problem under discussion because of a lack of factual knowledge, then the ideal solution would be to distribute some SLM to correct the deficiency before resuming the group activity. The fact that this tends not to happen in Europe reflects both the lack of teaching skills and the absence of materials.

Where physicians are working alone in their homes on continuing medical education, then there is some evidence of the existence of SLM (the mere fact that someone reads the established leading medical journal of a country can be interpreted as evidence of SLM), but the generally preferred method is for group instruction and discussion. Again, American experience can be used to highlight the problem. A survey reported in 1981 (5) produced the following data: 66% of physicians say they would like access to computerized self-assessment programmes. Those who are most supportive of this tend to be:

- teaching	73%
- working in research	74%
- less than 35 years old	78%
- recent graduates from medical school	75%-82%
- in favour of continuing medical education via cable television	76%
- in favour of over 15 hours per week of continuing medical education for their specialty	80%

Two of the conclusions of the survey are also worth noting: the activities related to continuing medical education that physicians pursue most frequently are the reading of journals and books and participation in consultations, discussions and hospital meetings and programmes. Younger physicians are more supportive of technical innovations in instructional modes (i.e. continuing medical education via cable television and for self-assessment, self-instructional, computerized programmes.

One problem highlighted by the European survey is the small scale of the market for SLM. For example, in Sweden the total number of doctors in a specialty or the total of any group of health workers is small, at least in publishing terms. Commercial publishers need a fairly large market before they will publish SLM. The different languages mean that most materials cannot be international. Thus, it would seem that a great deal of national government support is required if the vast amount of time and resources needed to produce SLM are to be found. Perhaps an international study of the common ground between the curricula of the various categories of health workers in the countries of the Region would provide worthwhile results. It could be that intra-professional training would solve some of the problems of the scale of the market.

Educationalists have almost totally failed to exploit the advances made by technology, which is in sharp contrast to the fact that medicine itself has become increasingly technological.

13. Recommendations

Efforts should be made to promote a greater understanding of the value of SLM and, in particular, to counteract the idea that SLM and small group education are mutually exclusive. These efforts should be linked with attempts to improve the general educational knowledge of teachers.

A survey should be conducted to see what common ground exists between the curricula of the various categories of health workers both within and between countries. This survey should bear in mind that intra-professional training could have advantages.

Ways of disseminating knowledge concerning technological developments need to be sought.

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